STRATUS CONSULTING

Natural Resource Damages Associated with Past Aesthetic and Ecosystem Injuries to Oklahoma's Illinois River System and Tenkiller Lake

Expert Report for State of Oklahoma, in Case No. 05-CV-0329-GKF-SAJ, State of Oklahoma v. Tyson Foods, et al. (In the United States District Court for the Northern District of Oklahoma)

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January 5, 2009

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Benefits transfer is commonly used in economics, and there is a well-developed scientific literature on the topic (Rosenberger and Loomis, 2003). Guidelines for economic analysis discuss how and when benefits transfer should be applied (U.S. EPA, 2000; U.S. OMB, 2003).

The benefit transfers approach is recognized as an appropriate assessment method in federal natural resource damage assessment regulations [U.S. Department of the Interior (DOI) 43, C.F.R. Part 11, 61 FR 20560, 73 FR 57259, the National Oceanic Atmospheric Administration (NOAA) 15 C.F.R. Part 990 61 FR 440] and benefit transfer studies have formed the basis of damage calculations in previous natural resource damage assessments and other court cases [e.g., *California v. B.P America*, *(S/V American Trader*); *Alaska Pulp Corporation v. United States*]

In the present case, we adapt the estimate of average willingness-to-pay (WTP) per household in 2008 for reducing future injuries occurring after 2008, as reported in Chapman et al. (2009), in order to estimate the average WTP per household in 1980 for reducing injuries occurring between 1981 and 2008.

In evaluating the applicability of the estimate from Chapman et al. (2009) for a benefits transfer, we note that: the geographic location is the same; the same environmental resources are being evaluated with respect to the same types of injuries; and the population groups are similar. Below, we compare the characteristics of the population groups including incomes and attitudes towards spending on the environment to account for potential change in those variables.

Estimating Past Damages

The objective is to estimate the economic value of the loss of services arising from injuries to Oklahoma public trust resources in the Illinois River system and Tenkiller Lake occurring during the period 1981-2008. This valuation is based on the estimate of average WTP of $184.55 per household in the Oklahoma study area, measured in 2008 dollars (Chapman et al., 2009). That single payment estimates the tradeoff an average household made in 2008 to avoid the combined loss of services from injuries in the Illinois River system and Tenkiller Lake occurring between 2009 and 2058 (for the Illinois River system) and between 2009 and 2068 (for Tenkiller Lake). This is being adapted to estimate the tradeoff that an average household would have made in 1980 to avoid a loss of services from injuries in the Illinois River system and Tenkiller Lake occurring between 1981 and 2008.

It is not possible to apportion the $184.55 from the contingent valuation (CV) study into separate values for the river and the lake, or into a separate value for the loss of services in any particular year. Each respondent to the CV survey made an overall assessment of whether the program for the accelerated reduction of injuries in the river and lake over these periods was worth at least the specified cost when deciding whether to vote for or